

AMENDMENTS TO THE CLAIMS

CLAIM 1 (CURRENTLY AMENDED): A shift control apparatus for a bicycle having a plurality of front sprockets and a plurality of rear sprockets, wherein a front derailleur shifts a chain among the plurality of front sprockets and a rear derailleur shifts the chain among the plurality of rear sprockets, wherein the apparatus comprises:

a shift unit that provides signals for shifting the front derailleur and the rear derailleur; and
a prohibiting unit operatively coupled to the shift unit and providing signals so that the chain is prohibited from engaging at least one prohibited sprocket combination comprising at least one of
i) a laterally innermost front sprocket in combination with a laterally outermost rear sprocket, and ii)
a laterally outermost front sprocket in combination with a laterally innermost rear sprocket;

wherein the prohibiting unit detects when the front derailleur and the rear derailleur are positioned such that shifting the front derailleur or the rear derailleur to execute a shift command would cause the front derailleur and the rear derailleur to engage the at least one prohibited sprocket combination.

CLAIM 2 (ORIGINAL): The apparatus according to claim 1 wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging the laterally innermost front sprocket in combination with the laterally outermost rear sprocket.

CLAIM 3 (ORIGINAL): The apparatus according to claim 2 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging the second front sprocket in combination with the laterally innermost rear sprocket.

CLAIM 4 (ORIGINAL): The apparatus according to claim 2 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front

sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that chain is prohibited from engaging the second front sprocket in combination with the laterally outermost rear sprocket.

CLAIM 5 (ORIGINAL): The apparatus according to claim 2 wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging the laterally innermost front sprocket in combination with a rear sprocket adjacent to the laterally outermost rear sprocket.

CLAIM 6 (ORIGINAL): The apparatus according to claim 5 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging the second front sprocket in combination with the laterally innermost rear sprocket.

CLAIM 7 (ORIGINAL): The apparatus according to claim 5 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that chain is prohibited from engaging the second front sprocket in combination with the laterally outermost rear sprocket.

CLAIM 8 (ORIGINAL): The apparatus according to claim 1 wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging the laterally outermost front sprocket in combination with the laterally innermost rear sprocket.

CLAIM 9 (ORIGINAL): The apparatus according to claim 8 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front

sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging the second front sprocket in combination with the laterally innermost rear sprocket.

CLAIM 10 (ORIGINAL): The apparatus according to claim 8 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that chain is prohibited from engaging the second front sprocket in combination with the laterally outermost rear sprocket.

CLAIM 11 (ORIGINAL): The apparatus according to claim 8 wherein the prohibiting unit cooperates with the shift unit so that the shift unit prohibits the chain from engaging the laterally outermost front sprocket in combination with a rear sprocket adjacent to the laterally innermost rear sprocket.

CLAIM 12 (ORIGINAL): The apparatus according to claim 11 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging the second front sprocket in combination with the laterally innermost rear sprocket.

CLAIM 13 (ORIGINAL): The apparatus according to claim 11 wherein the plurality of front sprockets comprises a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting

unit cooperates with the shift unit so that chain is prohibited from engaging the second front sprocket in combination with the laterally outermost rear sprocket.

CLAIM 14 (ORIGINAL): The apparatus according to claim 1 wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging i) a laterally innermost front sprocket in combination with a laterally outermost rear sprocket, and ii) a laterally outermost front sprocket in combination with a laterally innermost rear sprocket.

CLAIM 15 (ORIGINAL): The apparatus according to claim 14 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging the second front sprocket in combination with the laterally innermost rear sprocket.

CLAIM 16 (ORIGINAL): The apparatus according to claim 14 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that chain is prohibited from engaging the second front sprocket in combination with the laterally outermost rear sprocket.

CLAIM 17 (ORIGINAL): The apparatus according to claim 14 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging i) the second front

sprocket in combination with the laterally innermost rear sprocket, and ii) the second front sprocket in combination with the laterally outermost rear sprocket.

CLAIM 18 (ORIGINAL): The apparatus according to claim 14 wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging i) the laterally innermost front sprocket in combination with a rear sprocket adjacent to the laterally outermost rear sprocket, and ii) the laterally outermost front sprocket in combination with a rear sprocket adjacent to the laterally innermost rear sprocket.

CLAIM 19 (ORIGINAL): The apparatus according to claim 18 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging the second front sprocket in combination with the laterally innermost rear sprocket.

CLAIM 20 (ORIGINAL): The apparatus according to claim 18 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that chain is prohibited from engaging the second front sprocket in combination with the laterally outermost rear sprocket.

CLAIM 21 (ORIGINAL): The apparatus according to claim 20 wherein the plurality of front sprockets comprise a first front sprocket, a second front sprocket and a third front sprocket, wherein the first front sprocket comprises the laterally innermost front sprocket, wherein the third front sprocket comprises the laterally outermost front sprocket, wherein the second front sprocket is disposed between the first front sprocket and the third front sprocket, and wherein the prohibiting unit cooperates with the shift unit so that the chain is prohibited from engaging i) the second front

sprocket in combination with the laterally innermost rear sprocket, and ii) the second front sprocket in combination with the laterally outermost rear sprocket.

CLAIM 22 (ORIGINAL): The apparatus according to claim 1 further comprising riding condition sensing means for sensing a riding condition of the bicycle, wherein the shift unit cooperates with the riding condition sensing means to automatically operate the front derailleur and the rear derailleur in accordance with the riding condition.

CLAIM 23 (ORIGINAL): The apparatus according to claim 1 further comprising a manually operated shift control device that provides shift command signals to the shift unit, wherein the shift unit operates the front derailleur and the rear derailleur in response to the shift command signals.

CLAIM 24 (ORIGINAL): The apparatus according to claim 1 ~~wherein, when the shift unit would, absent influence from the prohibiting unit,~~ wherein the shift unit is adapted to attempt to engage the chain with at least one of i) a laterally innermost front sprocket in combination with a laterally outermost rear sprocket and ii) a laterally outermost front sprocket in combination with a laterally innermost rear sprocket, but the prohibiting unit causes the shift unit ~~engages to engage~~ the chain with a different front sprocket than the attempted front sprocket.